

Public 2021 DSPM Draft Update Review Comments						Comment Related DSPM Language	STAFF Response	
Comment #	Page #	Section #	Sub Section	DS&PM Statement	Comment	REFERENCED VERBIAGE	DEPARTMENT	STATUS
1	43	1-2.700		Inspection approval is not construed as approval if case is deemed to be in violation of City code.	Why would inspector approve a case if case is in violation? If a case is in violation & violation item is not resolved, inspection should not approve it.	Construction or work for which a permit is required shall be subject to inspection and such construction or work shall remain accessible and exposed for inspection purposes until approved. Approval as a result of an inspection shall not be construed to be an approval of a violation of the provisions of any codes or ordinances of the City of Scottsdale. Inspections are made for building, electrical, mechanical, plumbing, and zoning compliance for residential, commercial and industrial development, and for the remodeling of existing buildings. Water, sewer, paving, concrete and grading activities also require city inspection. As part of the development process all permitted construction activities must be inspected by the city's Inspection Services staff. The review of plans and issuance of permits do not authorize code or ordinance violations that may be discovered by city inspectors at the job site.	OTHER	No change. Municipal approvals do not release design professional's design responsibility, as per industry standards.
2	57	1-3.200	M.	Plan approval is valid for 6-months	It takes 10-12 months to get plans & plat approved from the date of preliminary plat is submitted. Approval expiration should be at 12-month post approval date.	Under Public Works' civil improvement general notes, note number 3 states: "The approval of plans is valid for six (6) months. If a right-of-way permit for the construction has not been issued within six months, the plans must be resubmitted to the city for reapproval."	ENGINEERING	Change addressed. City staff modified language to be consistent with that of building plan approvals; multiple approvals allowable at 6 months per approval and additional fees applied.
3	78	2-1.302	Item B2	D/W shall comply with Figure 1-2.3	Figure 1-2.3 not shown or labeled?	NA	ENGINEERING	Change addressed. City staff has corrected this.
4	104	2-1.401	Item C	...unless otherwise approved by City Staff.	What does this mean & what's Staff approval is based on?	C. The maximum side slope of the basin is 4:1 (run-to-rise) unless otherwise approved by city staff. Walled banks may be permitted subject to the separate wall design approved by the DRB.	OTHER	No change. Staff approvals allow design professionals and staff the flexibility to address regulatory requirements for site specifics that can't readily be catalogued.
5	106	2-1.403	C.	The following plants shall not be used in any landscaping installation or revegetation program:	Please add: Leucaena Leucocephala / Popinac	C.Plants that should not be used in any part of a basin: oFoot hills Palo Verde (Cercidium microphylla) oChollas and Pricklypears (Opuntia Sp.) oBarrel Cacti (Ferocactus Sp.) oBursage (Ambrosia deltoidea) oCentury plants (Agave Sp.) oBrittlebush (Encelia farinosa) oBuckwheat (Eriogonum fasciculatum) oCotillo (Fouquieria splendens)	PLANNING	Change addressed. City staff modified language to add Leucaena Leucocephala / Popinac to the list of prohibited plants.
6	108	2-1.501	Item I.	Install decomposed granite, if used as a groundcover, to a minimum depth of 2 inches on sites. In ESL areas, decomposed granite shall be native stone colors (i.e., Madison Gold/Desert Gold) and should be limited to areas not visible from roadways.	Typo- second paragraph-decomposed. Suggest "In ESL areas, decomposed granite shall be native stone, size and color that match as close as possible, the existing, undisturbed ESL area. Question- why is this to be limited to areas not visible from roadways?	I. Install decomposed granite, if used as a ground cover, to a minimum depth of 2 inches on sites. <u>In ESL areas, decomposed granite shall be native stone colors (i.e., Madison Gold/Desert Gold) and should be limited to areas not visible from roadways.</u>	PLANNING	Change addressed. Decomposed granite generally limited to areas not visible from roadways as decomposed granite is generally discouraged in ESL areas and areas visible from roadways provide are most seen by the public at large.
7	108	2-1.501	Item M	Do not plant shrubs and trees within the 2 feet overhang at the head of a parking stall.	Please consider: Where applicable, plant tree on a parking stripe.	M. Do not plant shrubs and trees within the 2 feet overhang at the head of a parking stall.	PLANNING	Change addressed. Added language regarding protected planting areas between parking stalls.
8	118	2-2.102	Item B	describes where less than 20' easement may be allowed	This is a well defined guideline. Staff approval referenced on this page should be followed throughout the DS&PM whereby staff approval is based on clearly defined steps or items. This will eliminate vagueness.	B.Easements The minimum width of easements is 20 feet. Place the entire easement on one side of a property line. <u>Less width may be allowable if permanent access parallel with the easement is provided or available. An access path parallel to the pipeline within the easement may be required.</u> Any vertical barrier that crosses an easement must be constructed of wood, wire, or removable type fencing. Revegetation or landscape improvements that are within the easement must not restrict <u>vehicle or construction excavation equipment</u> access to the utility that is located within the easement.	OTHER, PLANNING, ENGINEERING, STORMWATER, TRANSPORTATION, WR	No change. Staff approvals allow design professionals and staff the flexibility to address regulatory requirements for site specifics that can't readily be catalogued.
9	125	2-2.303	Item A.2	describes variance approval for slope > 4:1	Tto secure 2 approvals (P&D & Transportation) is difficult & time consuming. It would seem that if a Geotechnical Report supports slope >4:1, that should be the basis of approval?	2. The maximum slope gradient for fill slopes within the rights-of-way is 4:1 (horizontal to vertical) and for cut slopes is 3:1 (horizontal to vertical), unless otherwise approved by the Planning and Development Services Department and Transportation Department Directors or their designees.	PLANNING, TRANSPORTATION	No change. Transportation does not see the corroboration with Planning as a deterrent towards approval, rather as a collaborative effort that seems to work well. Staff does not support removing that collaborative approval process from the DSPM

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10	139	2-2.405	Figure 2.7	described allowable retaining height in triple wall scenario	Does elevation-height "C" applies to double retaining wall? If not, a clarification statement should be added to this Figure.			PLANNING	Change addressed. Staff clarified language to make it clear that height for "C" is related to situations that combine a retaining wall with a standard sight wall
11	143	2-2.501	Item D.5.d.ii	permanent irrigation in "NAOS" is prohibited	What about the concept of greywater irrigation to nurture "NAOS" areas? This is what Green Build encourages. This item should be discussed.	<p>d.General Limitations and Requirements</p> <p>ii.Plant material installed with any NAOS Enhancement shall be watered for a period not less than 18 months and not greater than 36 months to establish the plant survival. The watering technique shall not include any permanent irrigation facilities. All temporary irrigation materials are to be removed once the establishment irrigation period has ended.</p>		PLANNING, WR	No change. It is the opinion of Scottsdale Water that introducing greywater into NAOS conflicts with founding principles of NAOS and removes a critical resource utilized in short and long-term planning for the city's water supply. Consequences to the natural environment from greywater discharge to NAOS areas could include:1. Altered landscape and an increase in vegetation density, which may be a concern for wildfire. Suggested contact with the city's Fire Department for more information; 2. Unnatural density could cause need for maintenance. Due to flows, overgrowth may occur on another property, resulting in increased maintenance costs by a person who is not the original discharger of graywater; 3. Over-growth would affect and potentially disrupt habitat and the natural processes, such as migration or foraging; 4. Additional flows could encourage the propagation of invasive and non-native plant life causing potential harm to native plants and animals; 5. Clean Water Act (CWA) stormwater quality regulations must be considered. The city holds a Municipal Separate Storm Sewer System (MS4) permit which must be followed. As an example, per code we do not allow such things as pool discharge to run off a residential or commercial property. Greywater discharged to a natural area may have contamination concerns that would be challenging to address and regulate. Detergents and other compounds could cause long term detrimental effects. Currently pesticides, chemicals, and household hazardous waste shall not be introduced in NAOS. Consequences to water reuse efforts and water resource utilization: 1. Wastewater is utilized in the City as a resource. It is collected, pumped and treated for reuse including irrigation purposes as well as groundwater recharge. Millions of dollars have been spent on infrastructure to beneficially use this source of water to build a robust water resources portfolio to consistently plan for the City's long-term resiliency in its water supply. Greywater harvesting and use would reduce this quantity of water put to other beneficial uses.
12	144	2-2.501	Item D.6.c.iii	clearing NAOS wash from debris requires Staff inspection	I find this statement concerning & not reasonable. It does not provide a level of trust with residents. If debris or obstruction is found (& that will happen), property owner should have the ability to clear it without requesting City inspection.	<p>c.Certain maintenance practices within NAOS areas are considered acceptable within specific limitations:</p> <p>iii.Limited clearing of debris and trimming of live plant materials that may obstruct the flow path in a wash (subject to confirmation by Drainage Inspection staff).</p>		PLANNING, STORMWATER	No change. This issue was in large part the subject of the wash maintenance brochure which was a joint effort between planning and stormwater to define when maintenance of a wash is needed and how it should be done in light of planning goals to preserve desert vegetation and stormwater goals to maintain conveyance of washes. A copy of the brochure is provided. Unfortunately, there are a number of instances in the past where wash areas that include NAOS and heavily vegetated wash corridors were removed of much or all of the vegetation as part of a "debris clearing effort". Per the brochure, these activities require staff input, and depending on the size of the effort, in some cases a field inspection, to prevent the issues that have occurred in the past.
13	189	4-1.201	B.3.	describes when drywell variance is allowed	If variance requirement is met, why does Staff approval required? I believe this entire point about Staff-Approval should be discussed before the Board.	<p>3.Rating 3 - Retention Basins Utilizing Dry Wells</p> <p>A retention basin utilizing dry wells for the dissipation of stormwater may be permitted, subject to stormwater staff approval, if:</p> <p>a.Stormwater storage basins based on ratings 1 and 2 are deemed not feasible by stormwater staff.</p> <p>b.A dual-chamber system is designed and installed to minimize sedimentation and pollution of the drywell; and</p> <p>c.State and federal authorities issue the applicable permit(s).</p>		STORMWATER	No change. There is a submittal of information, such as preliminary and final plans/drainage reports and percolation tests and related calculations, as part of development review that the City must review to determine whether a prior and preferred rating can be utilized. The City looks for a positive outfall as a means to drain stormwater storage basins as the preferred method (rating1) and basin floor percolation (rating 2) as the second preferred method. Note that rating 3 requires the use of dry wells that are a significant cost to development and are not preferred by the City and may not be preferred by the developer.

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14	189	4-1.201	B.4.	describes when injection well is allowed	If variance requirement is met, why does Staff approval required? The point about Staff-Approval should be discussed before the Board.	<p>4.Rating 4 - Detention Basins Utilizing Pumps or Injection Wells</p> <p>Pumping or an injection well may be permitted, subject to Stormwater staff approval, if:</p> <p>a.The owner demonstrates extreme hardship that the owner did not create;</p> <p>b.Stormwater storage basins based on ratings 1, 2, and 3 are deemed not feasible by stormwater staff.</p> <p>c.State and federal authorities issue the applicable permit(s); and</p> <p>d.The owner provides an agreement that states the owner is responsible for the function, maintenance, repair, and replacement of the facility in perpetuity and indemnifies the city from these responsibilities. This agreement shall be recorded against the property and responsibility for the facility shall run with the land.</p>		STORMWATER	No change. There is a submittal of information, such as preliminary and final plans/drainage reports and percolation tests and related calculations, as part of development review that the City must review to determine whether a prior and preferred rating can be utilized. The City looks for a positive outfall as a means to drain stormwater storage basins as the preferred method (rating1) and basin floor percolation (rating 2) as the second preferred method and a dry well (rating 3) as the third preferred method. A pump or injection well is the least preferred option and is typically avoided unless there are no other options.
15	190	4-1.201	C.2. c + d	describes first flush requirements being approved by "Water Quality Coordinator" & "Stormwater Staff"	What are the "Water Quality Coordinator" & "Stormwater Staff" approvals are based on? no definition is provided for the basis of approval? Clear definition of what qualifies for variance needs to be provided.	<p>c.The city may consider other measures of addressing the first flush requirement subject to review and approval by the Water Quality Coordinator.</p> <p>d.For sites that are less than one acre in size and are not likely to contribute stormwater contaminants to the city's municipal separate storm sewer system or waters of the U.S., the first flush volume may be waived, subject to prior approval by stormwater staff. If the first flush volume is waived, other stormwater controls may be required, subject to approval by stormwater staff.</p>		STORMWATER	No change. The statement only refers to addressing the first flush water quality requirement by means of alternate measures if the first flush volume within a stormwater storage basin is not or can not be provided. The ability to approve of alternate measures avoids the requirement of having a basin or basins to meet the first flush water quality requirement where a basin would otherwise not be needed for stormwater storage purposes. The design of alternate measures is very dependent on project design. For example, a development with a storm drain system can utilize centrifugal force type systems to meet this requirement; however, a development with no storm drain can not. Additionally, improvement in water quality for flows exiting a site is not easy to quantify, unlike quantity of flow exiting a site, and there does not appear to be a great deal of guidance on acceptable measures and their effectiveness in meeting this requirement. The requirements come from the EPA and is enforced by each state at the state level. The verbiage within the DSPM attempts to provide flexibility in meeting this requirement which can have significant cost implications and impact the design and layout of developments.
16	188	4-1.201.A	GENEALLY		RECOMMENDATION: Revise "acceptable" to "desirable". Drywells are commonly accepted as a discharge method.	Stormwater storage facilities shall be designed primarily as detention facilities. Other stormwater storage facilities, such as retention basins utilizing basin floor percolation and dry wells are less acceptable. Stormwater storage facilities utilizing pumps and injection wells are rarely acceptable and will only be allowed in accordance with the SRC.		STORMWATER	Change addressed. This request is acceptable to staff.
17	188	4-1.201.B	item 3B	"A dual-chamber system is designed and installed to minimize sedimentation and pollution of the drywell; and"	RECOMMENDATION: Add an option to allow a single-chamber system if other environmental structures are designed upstream of underground storage systems.	<p>Rating 3 - Retention Basins Utilizing Dry Wells</p> <p>A retention basin utilizing dry wells for the dissipation of stormwater may be permitted, subject to stormwater staff approval, if:</p> <p>Stormwater storage basins based on ratings 1 and 2 are deemed not feasible by stormwater staff.</p> <p>A dual-chamber system is designed and installed to minimize sedimentation and pollution of the drywell; and</p> <p>State and federal authorities issue the applicable permit(s).</p>		STORMWATER	Change addressed. Staff could allow single chamber in areas or cases of minimal sedimentation only. This would make sense in underground storage conditions if designed properly.

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18	189	4-1.201.C	item 1b	For sites that have been previously developed (Vr = $\Delta C(R/12)$ A) the following requirement as stated should be clarified: "In all cases, as part of the design of stormwater management system for previously developed sites or portions thereof, the applicant must illustrate no increase in outflows from the site or applicable portions of the site from pre-development conditions."	RECOMMENDATION: For sites that do not have existing retention systems in place, any required storage volume calculated to be less than 1,000 CF can be waived through the Stormwater Waiver Request process. The resultant increase in outflows from the site must be shown to be accommodated in the off-site storm conveyance system.	For sites that have been previously developed, or portions of a site thereof, the formula for determining the required stormwater storage runoff volume is shown below: $Vr = \Delta C(R/12) A$ Vr = Required storage volume in cubic feet. R = Precipitation amount = the depth in inches of the 100-year, 2-hour rainfall, from figure in Appendix 4-1C or the NOAA website for the site location A = Area in square feet of total disturbed area attributable to the development, including: (1) Easements, tracts and rights-of-way within the development, plus (2) Where the development includes street improvements to the rights-of way on the perimeter of the property, the area of those improvements up to the centerline. In the formula, ΔC is equal to the increase in the weighted average runoff coefficient over disturbed area (Cpost – Cpre) and the existing condition C value is based on a weighted average of C values over the site based on historical aerial photographs or other data acceptable to city stormwater staff documenting the existing condition C value and a weighted C calculation. Pre and post weighted average C value calculations shall be submitted for review and approval by city stormwater staff. Sites that have been previously developed consist of those sites where the city has issued a permit for grading of the site or the site was graded or developed prior to 1987 regardless of issuance of a city permit. However, any existing stormwater storage volume associated with the previously developed areas of a site or portions thereof must be maintained and added to the volume calculation above for the previously developed portions of the site. Additionally, for the previously developed portion of site, the project will not be required to provide storage more than the full storage calculation for sites that have not been previously developed. In all cases, as part of the design of stormwater management system for previously developed sites or portions thereof, the applicant must illustrate no increase in outflows from the site or applicable portions of the site from pre-development conditions.		STORMWATER	No change. For previously developed parcels of portions thereof, City code provides for storage of the 100-year, 2-hour volume is based on the delta C in the standard storage equation. This is in addition to maintaining existing storage volumes. Waiving a volume must meet one of the 3 waiver criteria only irrespective of the presence of existing volume. The volume itself is not one the three criteria; however, size of parcel being developed is one criteria, with smaller parcels and associated smaller volumes able to be waived. In short, staff would have to revise or add to the waiver criteria which would require a City code update. Staff can not require volumes that are very small as de minimis.
19	191	4-1.201.C	2 item 2a	The applicable area (A) requiring First Flush Retention is stated as being "the disturbed area of the proposed development, in square feet"	RECOMMENDATION: The intent of First Flush is to reduce potential stormwater contaminants from leaving the site. These stormwater contaminants are associated with vehicle activity areas including drive aisles and parking areas. The volume requirements should be modified to reflect these development areas only.	First Flush Volume The first flush volume shall be calculated using the following formula: $V = CPA$, where: V = the required first flush storage volume, in cubic feet; C = the weighted average runoff coefficient for the disturbed area of the proposed development; P = the required precipitation depth of 0.5 inches, converted to feet; and A = the disturbed area of the proposed development, in square feet.		STORMWATER	No change. Staff is not certain that parking areas are the only source of pollutants. This may be the case for typical residential or commercial development though. This would require some research but may be fruitful in the policy and associated requirements on first flush.
20	191	4-1.201.C	2 item 2g	The DS&PM states: "The volume of storage provided must equal or exceed the approved design volume before the city will issue a C of O".	CLARIFICATION OF APPROPRIATE APPROVALS: The DS&PM allows staff to approve first flush volumes less than what the standard equation would require and provides for the acceptance of alternate methods to address first flush	The volume of storage provided must equal or exceed the approved design volume before the city will issue a C of O.		STORMWATER	No change. This comment appears to be located in the wrong section under first flush storage and relates to making sure constructed basin volumes equal or exceed design volumes for basins in general.

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21	194	4-1.202	Item C.2	The DS&PM states "Storage systems must not be located under structures, parking garages, or significant landscaping such as trees or sizable cactus that would preclude access to or replacement of the facilities."	RECOMMENDATION: With the advent of near property line to property lines footprints, the implementation of underground storage vaults within the parking structures, etc. should be considered. These systems would require a design to not have a detrimental impact to living spaces and mechanical areas if a failure occurs. If there is no direct discharge option, design should include redundant pump discharge outlets and consideration for storms larger than the standard event. Pump discharge for standards storm events would ensure existing flow rates at historical outfalls would not be exceeded.	GENERAL CRITERIA FOR UNDERGROUND STORMWATER STORAGE SYSTEM DESIGN Underground stormwater storage systems must demonstrate protection of public health, safety, and welfare as established by the SRC and related policies. Storage systems must not be located under structures, parking garages, or significant landscaping such as trees or sizable cactus that would preclude access to or replacement of the facilities.		STORMWATER	No change. This issue would take some time to evaluate. The city requires public drainage easements over all storage facilities as well as access easement to the facilities. The easements would be inconsistent with storage within parking structures as they preclude structures. Additionally, and likely a larger issue, the needed maintenance and potential replacement of the facilities would need to be addressed.
22	194	4-1.202	Item C.3	"The owner must dedicate a public drainage easement to the city which meets the standards for all drainage easements."	RECOMMENDATION: The actual vaults, access to the storage vaults, including a ten (10) foot wide parking area for maintenance access adjacent to the vault would be placed in an easement dedicated to the COS. If within an underground parking structure, this easement would be inclusive of parking structure entrance and applicable internal drive aisles.	GENERAL CRITERIA FOR UNDERGROUND STORMWATER STORAGE SYSTEM DESIGN Underground stormwater storage systems must demonstrate protection of public health, safety, and welfare as established by the SRC and related policies. Storage systems must not be located under structures, parking garages, or significant landscaping such as trees or sizable cactus that would preclude access to or replacement of the facilities. The owner must dedicate a public drainage easement to the city which meets the standards for all drainage easements.		STORMWATER	No change. This issue would take some time to evaluate. The city requires public drainage easements over all storage facilities as well as access easement to the facilities. The easements would be inconsistent with storage within parking structures as they preclude structures. Additionally, and likely a larger issue, the needed maintenance and potential replacement of the facilities would need to be addressed.
23	200	4-1.300	Item B	Staff may also require slope stability analysis	This statement creates confusion & potential inequality treatment among projects. Clarity is the best practice.	B.Erosion hazard zones consistent with ADWR may be required for all properties under development where watercourses will be left in an undisturbed state. The city may require further analysis (ADWR Level II or III) under certain geomorphic conditions where staff is concerned that erosion limits may exceed those estimated by a Level I analysis. The city may also require a slope stability analysis. In distributary flow watercourses, the stability of flow divergence locations and washes should be determined before approval of a proposed structure.		STORMWATER	No change. A slope analysis is rarely required but would likely be necessary on deeper washes for structures placed near or at the edge of what would be the limit of potential lateral erosion. In short, in the event of the lateral erosion, a structure adjacent to a step eroded slope may not be stable and a stability analysis may be needed to determine a safe setback for the structure. These typically would come into play on fairly deep washes only which are fewer in Scottsdale.
24	238	5-1.100	Item B		Remove: "Comparisons to other allowed Land uses may require approval by Current Planning staff to verify conformance to current zoning ordinances, and these comparisons shall be contained in the appendix of the report."	"Existing, allowed land use" will shall be interpreted as development that is allowed under the city's current zoning and General Plan designation – building areas and land uses that are existing, previously existed, or are based upon an approved site by the City Council or Development Review Board. Comparisons to other allowed land uses may require approval by Current Planning staff to verify conformance to current zoning ordinances, and these comparisons shall be contained in the appendix of the report. Development may be restricted to previously approved site plans and development programs where prescribed by zoning stipulations. For those In situations where it is questionable as to what level of development is allowed on the site, such as assumed land uses and floor area ratios , the Zoning Administrator will make the final determination.			Possible reversion to 2018 DSPM language. Transportation will support language in current version of DSPM and is willing to withdraw the proposed language changes to the subject section.
25	238	5-1.100	Item B		Revise to: "...previously existed, allowed for build out, or based upon an approved site plan by the City Council or DRB or if there is no approved site plan by that City Council or DRB then what the current zoning category allows."	"Existing, allowed land use" will shall be interpreted as development that is allowed under the city's current zoning and General Plan designation – building areas and land uses that are existing, previously existed, or are based upon an approved site by the City Council or Development Review Board. Comparisons to other allowed land uses may require approval by Current Planning staff to verify conformance to current zoning ordinances, and these comparisons shall be contained in the appendix of the report. Development may be restricted to previously approved site plans and development programs where prescribed by zoning stipulations. For those In situations where it is questionable as to what level of development is allowed on the site, such as assumed land uses and floor area ratios , the Zoning Administrator will make the final determination.			Possible reversion to 2018 DSPM language. Transportation will support language in current version of DSPM and is willing to withdraw the proposed language changes to the subject section. Please advise.

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26	239	5-1.100	Item C		Revise to: "...the developer may at its discretion provide any non proprietary..."		No change. Staff does not agree with proposed change. Transportation supports the ability to request and receive any digital files to corroborate the technical analyses submitted by the development team. It is transportation's staff understanding this is similar practices to other disciplines at the City in the development review process.
27	239	5-1.101	NA		Generates less than 150* trips		No change. Staff does not agree with proposed change. It is generally accepted practice to utilize 100 peak hour trips as a threshold for some sort of traffic analysis. Staff supports existing thresholds in the current version of DSPM and doesn't see a compelling reason to consider changing those thresholds. Staff has numerous local and national examples citing the 100 peak hour threshold (or less) to warrant an analysis to some degree.
28	240	5-1.103	NA		Note 6 revised to: "intersections within one-half mile of the site"		No change. Staff does not agree with proposed change. Transportation supports the flexibility to require safety assessments in the "vicinity of the site" on a case-by-case basis - which is provided for within the language of the existing referenced section in the DSPM.
29	241	5-1.201	NA		Note 8 revised to "within 1/4 mile"		No change. Staff does not agree with proposed change. Category 2 TIMAs are considered more substantive and potentially impactful to the adjacent street network. These impacts can be of the utmost concern to City Council, Planning Commission, and the general public at large. Thus, identifying those impacts within a 1-mile distance of the site may be necessary to achieve the necessary support for a given project. Staff supports existing DSPM language as written.
30	241	5-1.202	NA		Revised to "...intersections within one-half mile of the site..."		No change. Staff does not agree with proposed change. Similar response to Category 2 TIMA comment received: Category 3 TIMAs are considered more substantive and potentially impactful to the adjacent street network. These impacts can be of the utmost concern to City Council, Planning Commission, and the general public at large. Thus, identifying those impacts within a 1-mile distance of the site may be necessary to achieve the necessary support for a given project. Staff supports existing DSPM language as written.
31	242	5-1.301	NA		Revised to "...study will provide bi-directional traffic volumes" (remove current approach)	TRANSPORTATION	No change. Staff does not agree with proposed change. By definition, ADT = bi-directional traffic (counts). Staff supports the current language in the DSPM and wants to preserve the ability within the DSPM language to ask for all approach volumes on a case-by-case basis - which could include 1, 2, 3, or 4 approaches. For this reason, transportation staff supports the language that currently exists in the DSPM.

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32	243	5-1.306	NA		Remove: " and analyze sight distance availability and requirements. The Transportation Planning Division will provide information regarding bicycle and transit facilities near the site of the proposed development. The consultant will be responsible for incorporating the needs of these facilities into the analysis and report."	FIELD RECONNAISSANCE AND DATA COLLECTION 5-1.306 If current traffic volume data is not available, the consultant will be responsible for obtaining traffic volume data in accordance with the requirements of the study, as stated previously. The consultant must also obtain speed limit information and analyze sight distance availability and requirements. The Transportation Planning Division will provide information regarding bicycle and transit facilities near the site of the proposed development. The consultant will be responsible for incorporating the needs of these facilities into the analysis and report.	TRANSPORTATIO N	No change. Staff does not agree with proposed change. Sight distance is one of the primary considerations in Traffic Engineering in terms of site as it impacts locations where site access may or may not be allowed. Staff does not support removal of language as per the request.
33	245	5-1.505	NA		Remove: "As a prime example, shopping centers should be analyzed for the period between Thanksgiving and Christmas, which is traditionally the busiest shopping season."	DAILY AND SEASONAL VARIATIONS 5-1.505 Trip generation estimates for the average weekday are appropriate analyses for most, but not all, land uses. For some land uses, more trips are generated on Friday or Saturday than on the average weekday. Those days, rather than the average weekday, may be the most appropriate design or analysis period for those uses. Seasonal variations are also important for some land uses. As a prime example, shopping centers should be analyzed for the period between Thanksgiving and Christmas, which is traditionally the busiest shopping season. For recreational and hotel land uses the consultant must provide an analysis that adjusts the background traffic to replicate the appropriate peak season of the generator. Seasonal adjustment factors are available from the Transportation Department.	TRANSPORTATIO N	Change Addressed. Staff agreed to the change and struck it from the proposed DSPM accordingly.
34	249	5-1.703	A.1.		Remove "6th edition"	Signalized Intersections Signalized intersection level of service will be determined utilizing the methods contained in the Highway Capacity Manual (HCM), 6th Edition or most recent edition. Two methods (operational and planning) are provided for the analysis of signalized intersections.	TRANSPORTATIO N	Change Addressed. Transportation Staff agreed to the change and added the following: "most recent edition as accepted by City Transportation Staff".
35	252	5-1.703	C.		Remove subsection C in its entirety	C.Program Improvements If adequate transportation improvements cannot be reasonably recommended, consideration should be given to reducing trip generation during problem periods by reducing the project magnitude or altering the land use mix.	TRANSPORTATIO N	No change. Staff does not agree with proposed change. If this language is removed, what is the recommended replacement for traffic engineering mitigation measures. It can be assumed that within this statement, oversaturation is already occurring along the adjacent street network - intersections and segments. Staff would prefer to table this proposed removal for consideration in subsequent DSPM updates.
36	255	5-1.900	5-1.901- 5-1.902		Remove subsection in its entirety - This is typically not done as part of TIMA	ON-SITE CIRCULATION5-1.900. An integral part of an overall traffic impact study relates to basic site planning principles. It is extremely important that off-site roadway improvements be fully integrated with on-site recommendations. This section provides direction for on-site circulation.APPROACH TO SITE PLANNING 5-1.901. Internal design will have a direct effect on the adequacy of site access points. The identification of access points between the site and the external roadway system, and subsequent recommendations concerning the design of those access points, is directly related to both the directional distribution of site traffic and the internal circulation system configuration. Driveway traffic volumes of varying sizes need to be accommodated on the site in terms of both providing sufficient capacity and queuing space, and of distributing automobiles to and from parking spaces, pick-up/drop-off points, and drive-through lanes. An integrated system should deliver vehicles from the external roadway system in a manner that is easily understood by drivers, maximizes efficiency, accommodates anticipated traffic patterns, and ensures public safety. Pedestrian linkages should conveniently and safely connect transit stops and parking facilities with building entrances. Similar linkages should be provided between buildings. It must be understood that simply providing access to a site by means of curb cuts does not necessarily mean that access to the development has been adequately addressed. The quality of access as it relates to the internal site circulation and design will have a direct relationship on the quality of traffic flow in and around the site development, as well as a direct impact on public safety.ON-SITE PLANNING PRINCIPLES 5-1.902. A. Access Points. Requirements for access to the public street system are detailed in Section 2-1.700 and Section 5-3.200. The guidelines should be followed as closely as possible. Exceptions will only be granted when there are demonstrable extenuating circumstances. Joint access (the sharing of a driveway by two or more properties) is desirable; particularly where property frontages are short and driveway volumes will be low. Such driveways should be located on joint property lines or be accessible via cross-access easements on the private property being served by the joint driveway. B.Vehicular Queuing Storage. Adequate internal and external vehicle queuing storage is essential to providing safe and efficient access and circulation. Queuing analyses must be included to demonstrate the adequacy of the proposed storage lanes. Drive-in and drive-through establishments should be provided with adequate queue storage capacity to accommodate normal peak queues. Since many of these businesses have major daily or seasonal variations in activity, peaking characteristics should be carefully evaluated. C.Internal Vehicular Circulation. Internal circulation is how vehicular traffic is delivered between entry points and parking areas, pick-up/drop-off points, and service areas. Internal circulation roadways should permit access between all areas. These roads should be designed for appropriate and efficient vehicle movement. D.Service and Delivery Vehicles. Service and delivery vehicles require separate criteria for movement to and from the site. Of interest is that adequate turning paths are provided for large service vehicles to allow entry and exit without encroaching upon opposing lanes or curbed areas. In addition, sufficient storage areas must be provided so that service vehicles do not hinder the use of parking and circulation routes for other visitors to the site. E.Pedestrian, Transit, Bicycles, and Accessible Facilities. The overall site plans should also consider public transportation, pedestrians, bicyclists and those with disabilities...CONTINUED WITHIN	TRANSPORTATIO N	No change. Staff does not agree with proposed change. Staff supports maintaining this section. Site plans accompany traffic impact studies and access is a primary consideration in site planning and analyses in general.

Public 2021 DSPM Draft Update Review Comments						Comment Related DSPM Language		STAFF Response	
Comment #	Page #	Section #	Sub Section	DS&PM Statement	Comment	REFERENCED VERBIAGE		DEPARTMENT	STATUS
37	285	5-3.101	5-3.1	S/W or Trail	Suggestion to study the removal of concrete SW in favor of alternative "less rigid" surface such as self-binding gravel or similar should be discussed for all street sections. Rigid concrete surface alternative is being evaluated nationwide.	WALKING SURFACES12-1.202 Accessible pedestrian surfaces shall be firm, stable and slip resistant. Vertical changes in elevation between ¼ inch and ½ inch along accessible routes shall be beveled, and any horizontal offsets limited to a maximum ½ inch gap. All material types other than asphalt and concrete are subject to COS staff approval. Note: Brick pavers, stone, stamped asphalt, or stamped concrete, designed to have domed or beveled tops should not be used along accessible pedestrian routes. Adjacent areas which are not a part of the accessible route can be used for these decorative purposes.		TRANSPORTATION	No change. Staff does not agree with proposed change. AC is meant for temporary construction. For operation + maintenance purposes, rigid materials are the generally accepted practice Valley wide. Staff supports maintaining existing language within the DSPM.
38	292	5-3.106	A. B. C.		Local collector: remove note 3 (ADT 1,500-5,000 vpd)	A. Rural/ESL Character with Trails 1. Auxiliary turn lanes may be required at intersections with additional ROW requirements 2. Cross-sections may vary to fit surrounding topography 3. ADT: 1,500 - 5,000 vpd 4. Design Speed: 30 mph 5. Maximum Grade: 12.0 percent 6. Minimum Grade: 0.4 percent 7. A six-foot-wide sidewalk may be required on one side of the street (TYPICAL VERBIAGE FOR B. + C.)		TRANSPORTATION	No change. Staff disagrees with the removal of ADT's corresponding to the cross-section. It is not uncommon industry practice to assign a range of ADT's to a functional classification of roadway and tailor that towards an Agency's unique characteristics. As a matter of fact, FHWA advises to use traffic volumes when assigning functional classifications to a roadway both in absolute numbers of vehicles and as a relative gauge.
39	294	5-3.107	A. B. C.		Local Residential Rural ESL: Remove note A.3. (ADT 1,500 maximum)	A. Rural/ESL Character with Trails (lot size greater than 20,000 square feet and/or subdivision of 10 or fewer lots) 1. Auxiliary turn lanes may be required at intersections with additional ROW requirements 2. Cross-sections may vary to fit surrounding topography 3. ADT: 1,500 vpd maximum (TYPICAL VERBIAGE FOR B. + C.)		TRANSPORTATION	No change. Staff disagrees with the removal of ADT's corresponding to the cross-section. It is not uncommon industry practice to assign a range of ADT's to a functional classification of roadway and tailor that towards an Agency's unique characteristics. As a matter of fact, FHWA advises to use traffic volumes when assigning functional classifications to a roadway both in absolute numbers of vehicles and as a relative gauge.
40	296	5-3.108	5-3.21	describe sidewalk location on all cross sectional details of all roadway classifications	Am I correct to understand that S/W (in all cross sectional details) are "detached"? If so, my complement to Staff for doing so. Serious consideration should also be given to eliminate rigid concrete surface in favor of less rigid material. That's what the nation is doing now.	WALKING SURFACES12-1.202 Accessible pedestrian surfaces shall be firm, stable and slip resistant. Vertical changes in elevation between ¼ inch and ½ inch along accessible routes shall be beveled, and any horizontal offsets limited to a maximum ½ inch gap. All material types other than asphalt and concrete are subject to COS staff approval. Note: Brick pavers, stone, stamped asphalt, or stamped concrete, designed to have domed or beveled tops should not be used along accessible pedestrian routes. Adjacent areas which are not a part of the accessible route can be used for these decorative purposes.		TRANSPORTATION	No change. Sidewalk locations per road classifications are addressed in 5-3.110. As to sidewalk material, AC is meant for temporary construction. For operation + maintenance purposes, rigid materials are the generally accepted practice Valley wide. Staff supports maintaining existing language within the DSPM.
41	296	5-3.108	NA		Local Commercial and Industrial: Remove note 2. (ADT 1,500-5,000 vpd)	LOCAL COMMERCIAL AND INDUSTRIAL 5-3.108 1. Auxiliary turn lanes may be required at intersections with additional ROW requirements 2. ADT: 1,500 - 5,000 vpd		TRANSPORTATION	No change. Staff does not agree with proposed change. ADT threshold is common practice in the Phoenix Valley.
42	326	5-3.206	NA	"Deceleration lanes are required at all new driveways on major arterials and at new commercial/retail driveways minor arterials. Deceleration lanes for driveways may also be required on collector streets and for non-commercial/retail driveways on minor	Remove and Revise to: "The installation of a right turn deceleration lane at driveways on streets classified as an arterial or collector may be considered when:	Deceleration lanes are required at all new driveways on major arterials and at new commercial/retail driveways minor arterials. Deceleration lanes for driveways may also be required on collector streets and for non-commercial/retail driveways on minor arterials. The lane length should be based on the distance needed to allow the vehicle to exit the through lane and slow to a 15-mph travel speed. To determine the need for a deceleration lane on streets classified as a minor arterial or collector, use the following criteria: At least 5,000 vpd are expected to use the street; The 85th percentile traffic speed on the street is at least 35 mph; At least 30 vehicles will make right turns into the driveway during a 1-hour period		TRANSPORTATION	Modified change proposed. Staff is willing to add the condition to the requirement to address situations where there are obstructions, right-of-way limitations, utility cabinets, or other situations that would make the construction of a deceleration lane readily physically unfeasible. Deceleration lanes are required at all new driveways on major arterials and at new commercial/retail driveways minor arterials unless determined to be unfeasible as by the Transportation Director.
43	326	5-3.206	1		Remove criteria 1	To determine the need for a deceleration lane on streets classified as a minor arterial or collector, use the following criteria: A. (1) At least 5,000 vpd are expected to use the street;		TRANSPORTATION	No change. Staff does not agree with proposed change. ADT threshold is common practice in the Phoenix Valley.
44	326	5-3.206	3		Revise criteria 3 to "100 or more vehicles"	To determine the need for a deceleration lane on streets classified as a minor arterial or collector, use the following criteria: A. (1) At least 5,000 vpd are expected to use the street; B. (2) The 85th percentile traffic speed on the street is at least 35 mph; C. (3) At least 30 vehicles will make right turns into the driveway during a 1-hour period.		TRANSPORTATION	No change. Staff does not agree with proposed change. 30 vph is a commonly accepted threshold in the Phoenix Valley and is generally accepted in the industry. Variations may include 25-40 vph, but 100 vph would likely create an adverse safety condition if adopted as a system-wide threshold. Staff supports current COS thresholds, corroborated by other Valley-wide and nationally recognized thresholds that are in line with current DSPM guidelines.

Public 2021 DSPM Draft Update Review Comments						Comment Related DSPM Language		STAFF Response	
Comment #	Page #	Section #	Sub Section	DS&PM Statement	Comment	REFERENCED VERBIAGE		DEPARTMENT	STATUS
45	326	5-3.206	NA	"Deceleration lanes may be required at driveways along collector and arterial streets that are at or over capacity to minimize the impacts to traffic flow along the adjacent street. They may also be required at driveway locations that cannot meet the standard driveway spacing to reduce the impacts of the separation from closely spaced streets and driveways."	Remove	Deceleration lanes may be required at driveways along collector and arterial streets that are at or over capacity to minimize the impacts to traffic flow along the adjacent street. They may also be required at driveway locations that cannot meet the standard driveway spacing to reduce the impacts of the separation from closely spaced streets and driveways.		TRANSPORTATION	No change. Staff does not agree with proposed change. Staff will reference similar responses to the issue of altering thresholds and removing firm language as it relates to deceleration lane thresholds and requirements. Staff supports maintaining current DSPM language regarding the matter.
46	326	5-3.206	NA	"The requirement for deceleration lanes may be subject to the Transportation Department review in urban areas and where conflicts with deceleration lane(s) exist"	Revise to "The requirement for deceleration lanes in urban areas where there is a priority to slow speeds, reduce conflicts with bikes, and reduce pedestrian crossing distances are discouraged.	The requirement for deceleration lanes may be subject to the Transportation Department review in urban areas and where conflicts with deceleration lane(s) exist.		TRANSPORTATION	No change. Staff does not agree with proposed change. Staff has the expertise to exercise professional engineering judgement in the situation described in Section 5-3.206. Therefore, staff supports maintaining the current DSPM language.
47	474	6-1.202	G.6.c.	"ii. A minimum of 30 psi must be maintained at the worst case hydrant supply line tee/tap under this condition with a simultaneous minimum of 15 psi maintained at all domestic demand nodes (i.e., at the highest finished floor elevation and post service line and appurtenances)"	Delete reference to highest finish floor elevation. Water reports should demonstrate pressures available at the meter. Plumbing/fire sprinkler design sizes pipework from the meter into and including the building.	c.Model Scenario 3: Maximum day demand in gpm at all demand nodes with worst case fire flow (Refer to section 6-1.501 describing fire flow determination. Refer to Figure 6-1.2 and Section 6-1.404 for maximum day demand) Requirements: i.The determined fire flow must be applied to the single worst-case location in the proposed system where fire flow will be required. Typically, this is the furthest and/or highest point from the main water supply connection. If not clear what the worst-case fire flow demand point is, the fire flow shall be applied to each potential point in the model until the worst-case point is determined. ii.A minimum of 30 pounds per square inch (psi) must be maintained at the worst-case hydrant supply line tee/tap under this condition with a simultaneous minimum of 15 psi maintained at all domestic demand nodes (i.e., at the highest finished floor elevation and post service/supply line and appurtenances) (Refer to scenario 4 for guidance on modeling the service/supply line up to the demand nodes).		WR	No change. Some clarity could be provided on when the 15psi at highest finished floor criteria applies. Note that modeling to demand nodes is not intended to replace plumbing calcs and only include service line and "major" service line appurtenances. 3 reasons why this requirement exists, primarily applying to multiple structure developments spread over larger geographic areas, such as subdivisions. 1.) In areas of steep grade backflow could occur into the system from a home if positive pressure at highest finished floor is not maintained during fire flow i.e. vacuum condition. Note that residential homes do not have backflow preventers 2) During firefighting utilizing fire flow from a hydrant minimum sufficient pressure must be maintained for fixtures to be used in surrounding structures 3) The sprinkler systems of surrounding structures, that may be higher in elevation, may require minimum positive pressure to operate should they need to operate. Note: requirement is also stated in 6-1.406,C.

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48	474	6-1.202	G.6.d.	"Model Scenario 4" text.	Delete section "Model Scenario 4". Refer to comment 36 above.	d. Model Scenario 4: Maintain the minimum domestic service pressure at the worst case domestic demand node (location/elevation) under normal daily operating flow conditions termed henceforth as the Initial Service Line Design Flow. Notes: A minimum of 50 psi must be maintained at the highest proposed finished floor elevation to be served, for the worst hydraulic case domestic demand node, while applying the Initial Service Line Design Flow to the node. Typically, this will be the demand node with the lowest modeled pressure in the previous scenarios. The engineer shall define the service line details, demand node location, and determine normal daily operating hydraulic conditions/criteria as follows: i. Demand point location: the furthest, highest (i.e. worst case hydraulic metered node). If the service line distances and building heights are unknown, the demand node shall be located at the geometric center of the lot at elevation 12 feet above the planned finished floor elevation for single family residential. Otherwise a typical highest finished floor elevation for the development type shall be used. ii. Initial Service Line Design Flow: 1) Estimate the average number of water fixtures served by the subject node; 2) Use the 2015 International Plumbing Code, Appendix E, Table E103.3(2)-total load values and Table E103.3(3) to determine the normal operating flow rate; 3) Add 10 gpm minimum to the normal operating flow to account for either a hose bib or a single irrigation sprinkler zone or estimate a higher applicable intermittent or constant base flow; 4) Apply a 1.5 safety factor to the resultant total flow rate to obtain the Initial Service Line Design Flow. Note that this flow also factors into meter sizing, refer to section 6-1.416 Service Lines and Meters. iii. Determine the required service line and appurtenance sizing: If the sprinkler system and the domestic uses are metered through a shared meter use the greater of the resultant flow in step above, or the required fire sprinkler flow. Refer to the applicable Fire Code for sprinkler system flow and pressure requirements. Refer to section 6-1.404 Design Flows and Head Loss for design criteria on service lines. iv. Model pressure losses between the service line tap and the demand node: Determine the losses through the water meter and the pressure reducing valve for the resultant flow and sizing from the step above. A combined 10 psi or greater loss shall be used for meter and pressure reducing valve (PRV) in scenario 4. A 5 psi or greater loss shall be used for the meter and PRV in other modeled scenarios. The service pipe friction loss portion will be per its length and diameter as included in the model. v. All other demand nodes in the network, other than the worst-case node shall be assigned their corresponding peak hour total use demand per Figure 6.1-2 and Section 6-1.404 during this scenario. vi.No fire flows are to be applied for this scenario.		WR	No change. Clarification on when this applies could be added. Plumbing calculation will suffice for a single structure using single supply pressure. For a multi-structure development covering a large geographic area the varying pressures provided across this area (resulting from elevation and system design) must be analyzed/modeled to confirm adequacy. It should be noted that this involves just a slight adjustment on the peak hour model to conduct this analysis. Identifying the single worst case node, adjusting it, and determining the initial service line design flow for this node (which is needed to estimate meter size anyway) is all that's required. This model scenario and related pressure requirement is the most important analysis scenario other than fire flow. 50psi at the highest finished floor per this scenario may correspond to about 60 psi in the distribution system during peak hour, which represents a reasonable pressure condition commonly seen in the city. 72psi static pressure during peak demand periods is a typical baseline for fire sprinkler system design. In reality, pressures may vary between 40psi and 120psi in the system across varying demand periods. The WR engineer will use judgment in evaluating the specific conditions and modeling results and reasonable exceptions to baseline pressure requirements can be made. But this is done on a case by case basis. If helpful some of this language could be added. Note: also stated in 6-1.406, B.																																																																																																																																																																
49	476	6-1.202	G.6.H.3	AVERAGE DAY WATER DEMANDS Tables	The instantaneous gpm values result in flows that are not rational when compared to the sanitary sewer demands. Instantaneous demands appear more relevant to designs by the plumbing consultant.	<table><tr><th>Land Use</th><th>Inside Use</th><th>Outside Use</th><th>Total Use</th><th>Inside Use</th><th>Outside Use</th><th>Total Use</th><th>Units</th></tr><tr><td colspan="8">Residential Demand per Dwelling Unit</td></tr><tr><td>1-2 Dwelling Unit (see note 1)(gpm)</td><td>268.0</td><td>276.2</td><td>544.2</td><td>0.30</td><td>0.30</td><td>0.60</td><td>per unit</td></tr><tr><td>2-3 Dwelling Unit</td><td>393.0</td><td>276.2</td><td>669.2</td><td>0.42</td><td>0.30</td><td>0.66</td><td>per unit</td></tr><tr><td>4-7 Dwelling Unit</td><td>175.0</td><td>22.3</td><td>297.3</td><td>0.25</td><td>0.11</td><td>0.36</td><td>per unit</td></tr><tr><td>8-11 Dwelling Unit</td><td>155.0</td><td>22.3</td><td>227.6</td><td>0.22</td><td>0.11</td><td>0.33</td><td>per unit</td></tr><tr><td>12-21 Dwelling Unit</td><td>155.0</td><td>22.3</td><td>227.6</td><td>0.22</td><td>0.11</td><td>0.33</td><td>per unit</td></tr><tr><td>High Density Condominium (condo)</td><td>325.0</td><td>30</td><td>355.3</td><td>0.22</td><td>0.05</td><td>0.27</td><td>per unit</td></tr><tr><td>Single-Family Detached (detached)</td><td>301.0</td><td>24.6</td><td>496.3</td><td>0.56</td><td>0.07</td><td>0.63</td><td>per unit</td></tr><tr><td colspan="8">Service and Employment</td></tr><tr><td>Restaurant</td><td>1.2</td><td>0.1</td><td>1.3</td><td>1,671.00</td><td>1,396.04</td><td>1,811.00</td><td>per 100 sq. ft. (max)</td></tr><tr><td>Commercial/Industrial</td><td>0.2</td><td>0.1</td><td>0.3</td><td>9,230.04</td><td>1,396.04</td><td>1,111.00</td><td>per 100 sq. ft.</td></tr><tr><td>Commercial/Industrial</td><td>0.5</td><td>0.1</td><td>0.6</td><td>6,954.04</td><td>1,396.04</td><td>8,349.04</td><td>per 100 sq. ft.</td></tr><tr><td>Office</td><td>0.5</td><td>0.1</td><td>0.6</td><td>6,954.04</td><td>1,396.04</td><td>8,349.04</td><td>per 100 sq. ft.</td></tr><tr><td>Institutional¹</td><td>4.0</td><td>4.0</td><td>13.80</td><td>0.04</td><td>0.04</td><td>1.88</td><td>per unit</td></tr><tr><td>Industrial²</td><td>0.2</td><td>1.54</td><td>1.02</td><td>1.22</td><td>0.22</td><td>1.44</td><td>per unit</td></tr></table> <div><p>Reservoir and Development</p><table><tr><th></th><th>3000</th><th>150</th><th>1000</th><th>1.52</th><th>0.22</th><th>1.29</th><th>per unit</th></tr><tr><td>Medium Area (Unit)</td><td>0</td><td>0</td><td>0</td><td>0.0</td><td>0.0</td><td>0.0</td><td>per unit</td></tr><tr><td>Development (Unit)</td><td>0</td><td>1786</td><td>1786</td><td>0.0</td><td>2.80</td><td>2.80</td><td>per unit</td></tr><tr><td>Development (Unit)</td><td>0</td><td>5385</td><td>5385</td><td>0.0</td><td>5.96</td><td>5.96</td><td>per unit</td></tr></table><p>Notes:</p><p>(1) These values shall be used directly for final service line and water meter sizing.</p><p>(2) Gallons per day values are provided for reference only. The instantaneous average demand per minute flow rates presented are intended for use in the hydraulic modeling scenarios. The peak values assume a 12-hour water meter use period per 24-hour day. In large or complex developments or regions where the hydraulic analysis criteria and parameters should be developed with the Water Resources Department, seasonal peakings should also be considered. Upon review, the Water Resources Department reserves the right to designate flows to be used in hydraulic modeling scenarios that may be different from those presented herein.</p><p>(3) The hydraulic modeling peak factors used to select modeling scenarios are to be applied to the peak values shown herein. Max day and peak hour peaking factors can be found in Section 6.1.404.</p><p>(4) The use of per acre values should be reserved for appropriate water meter developments; specific definitions are not otherwise available or possible. Contact Water Resources to confirm applicability prior to using these values for analysis.</p></div>		Land Use	Inside Use	Outside Use	Total Use	Inside Use	Outside Use	Total Use	Units	Residential Demand per Dwelling Unit								1-2 Dwelling Unit (see note 1)(gpm)	268.0	276.2	544.2	0.30	0.30	0.60	per unit	2-3 Dwelling Unit	393.0	276.2	669.2	0.42	0.30	0.66	per unit	4-7 Dwelling Unit	175.0	22.3	297.3	0.25	0.11	0.36	per unit	8-11 Dwelling Unit	155.0	22.3	227.6	0.22	0.11	0.33	per unit	12-21 Dwelling Unit	155.0	22.3	227.6	0.22	0.11	0.33	per unit	High Density Condominium (condo)	325.0	30	355.3	0.22	0.05	0.27	per unit	Single-Family Detached (detached)	301.0	24.6	496.3	0.56	0.07	0.63	per unit	Service and Employment								Restaurant	1.2	0.1	1.3	1,671.00	1,396.04	1,811.00	per 100 sq. ft. (max)	Commercial/Industrial	0.2	0.1	0.3	9,230.04	1,396.04	1,111.00	per 100 sq. ft.	Commercial/Industrial	0.5	0.1	0.6	6,954.04	1,396.04	8,349.04	per 100 sq. ft.	Office	0.5	0.1	0.6	6,954.04	1,396.04	8,349.04	per 100 sq. ft.	Institutional ¹	4.0	4.0	13.80	0.04	0.04	1.88	per unit	Industrial ²	0.2	1.54	1.02	1.22	0.22	1.44	per unit		3000	150	1000	1.52	0.22	1.29	per unit	Medium Area (Unit)	0	0	0	0.0	0.0	0.0	per unit	Development (Unit)	0	1786	1786	0.0	2.80	2.80	per unit	Development (Unit)	0	5385	5385	0.0	5.96	5.96	per unit	WR	No change. On the contrary, prior versions of the DS&PM that relied on engineers to derive instantaneous water demand gpm value from 24hr demand values resulted in significant discrepancies between water and sewer peak demands. This may depend somewhat on the development category and number of units but overall the peak sewer vs. water demands now correspond a little more than before the change. Peak water demands still appear to be much less than peak sewer demands despite this change and quite a bit less than fixture calculations in some cases (again this may depend on category and scale of development). An effort is underway to review water demands by development category (and relate this directly to sewer demands). However, this update is not ready.
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Restaurant	1.2	0.1	1.3	1,671.00	1,396.04	1,811.00	per 100 sq. ft. (max)																																																																																																																																																																		
Commercial/Industrial	0.2	0.1	0.3	9,230.04	1,396.04	1,111.00	per 100 sq. ft.																																																																																																																																																																		
Commercial/Industrial	0.5	0.1	0.6	6,954.04	1,396.04	8,349.04	per 100 sq. ft.																																																																																																																																																																		
Office	0.5	0.1	0.6	6,954.04	1,396.04	8,349.04	per 100 sq. ft.																																																																																																																																																																		
Institutional ¹	4.0	4.0	13.80	0.04	0.04	1.88	per unit																																																																																																																																																																		
Industrial ²	0.2	1.54	1.02	1.22	0.22	1.44	per unit																																																																																																																																																																		
	3000	150	1000	1.52	0.22	1.29	per unit																																																																																																																																																																		
Medium Area (Unit)	0	0	0	0.0	0.0	0.0	per unit																																																																																																																																																																		
Development (Unit)	0	1786	1786	0.0	2.80	2.80	per unit																																																																																																																																																																		
Development (Unit)	0	5385	5385	0.0	5.96	5.96	per unit																																																																																																																																																																		

Public 2021 DSPM Draft Update Review Comments						Comment Related DSPM Language	STAFF Response	
Comme nt #	Pag e #	Section n #	Sub Sectio	DS&PM Statement	Comment	REFERENCED VERBIAGE	DEPARTMENT	STATUS
50	489	6-1.404	C.3.	"Generally, velocities of more than 5 feet per second are undesirable. Velocities more than 7.5 feet per second are not allowed."	Revise to "... more than 7.5 feet per second are not allowed under peak hour conditions. Fire flow conditions shall not exceed 15 feet per second."	C.The maximum allowable pipe head loss for the various water pipelines is as follows: 1.Transmission mains: 8 feet per 1,000 feet (3.5 psi per 1,000 feet) 2.Distribution lines: 10 feet per 1,000 feet (4.3 psi per 1,000 feet) 3.Service lines – domestic, dedicated fire, or combined domestic/fire: size as required to satisfy both hydraulic modeling requirements and Fire Code. Generally, velocities of more than 5 feet per second are undesirable. Velocities more than 7.5 feet per second are not allowed. 4.As otherwise designated by the Water Resources Department	WR	Change addressed. Modified as follows: C. The maximum allowable pipe head loss for the various water pipelines is as follows: 1. Transmission mains: 8 feet per 1,000 feet (3.5 psi per 1,000 feet) 2. Distribution lines: 10 feet per 1,000 feet (4.3 psi per 1,000 feet) While supplying fire flow, a velocity of more than 10 feet per second shall not be allowed without prior permission from Water Resources. Hydraulic modeling results shall corroborate proposed velocities with acceptable resultant system pressures. 3. Service lines – domestic, dedicated fire, or combined domestic/fire: These lines are sized as required to satisfy both hydraulic demand modeling requirements and Fire Code. Dedicated domestic service lines shall not exceed 10 feet per second per AWWA M22 Appendix C (or as consistent with the meter's design maximum flow). Fire related lines may allow velocities up to, or possibly exceeding, 15 feet per second, but this should be confirmed with relevant Fire Code. 4. As otherwise designated by the Water Resources Department
51	490	6-1.405	A.6.c.ii.	<u>Note to engineer:</u> Unless the flow and residual hydrant meet the criteria in the section below, the direct and projected unadjusted hydrant flow test results should only be used as a general guide or the system capacity. For modeling purposes adjustments to the test data may be required as described in the next section.	Delete paragraph. See comment 41.	6.Other data to supply: a.Test date and time b.Certification name, level, number, and seal c.Calculations: i.Measured flow calculation equation and supporting information such as orifice diameter, discharge coefficient, and pitot tube readings ii.Project flow calculation at max static pressure of 72psi and 20 psi residual system pressure. Show all calculations. iii.Note to engineer: Unless the flow and residual hydrant meet the criteria in the section below, the direct and projected unadjusted hydrant flow test results should only be used as a general guide for the system capacity. For modeling purposes adjustments to the test data may be required as described in the next section.	WR	No change. There are times when this adjustment will be necessary and applicable from a technical perspective. Section states it "may" be required. Engineering judgement should be used to determine when this is necessary.
52	491	6-1.405	B.	"Guidelines to Adjust the Flow Test Results for Use in Required Hydraulic Modeling" section.	Delete this section as it is too complex and specific for the level of analysis provided by modeling.	B. Guidelines to Adjust the Flow Test Results for Use in Required Hydraulic Modeling. This section serves as a guide to instruct the engineer on how to develop a distribution system supply curve or hydraulic grade line from the flow test results that can be used for hydraulic modeling scenarios. Refer to Section 6-1.202 for more information on modeling requirements. 1. Step 1: Adjusting Flow Results. Reduce all measured test flows by 10% to account for flow measurement inaccuracy and non-ideal flow hydrant location (1.10 safety factor). 2. Step 2: Adjusting Pressure Results-Flow Hydrant versus Residual Hydrant Location: In a basic hydrant flow test the flow at the flow hydrant is correlated to the pressure at the residual hydrant. However, the goal is to know both the flow and corresponding pressure at the flow hydrant (i.e., the connection point to the existing system). Only when the pressure in the supply line at the residual hydrant is effectively equal to the pressure in the supply line at the flow hydrant, can the flow test pressure results be used without this specific adjustment to model the system's hydraulic capacity (i.e., to develop a system supply curve). The pressure in the main line at the tee to the residual hydrant is effectively equal to the pressure at the tee to the flow hydrant when both the following are true: a. The residual and flow hydrant are at the same elevation, and; b. The head loss between the residual and flow hydrants during the flow test is determined to be negligible (less than 3 psi). This head loss determination adopts the simplifying assumption that 100% of the flow test flow passes through the mainline tee/tap of the residual hydrant (if physically possible). If either of the above items are not true, the engineer must adjust the resultant residual hydrant test pressures as follows: a. Adjusting for hydrant elevation pressure: b. If the difference in ground elevations of the flow and residual hydrant is greater than 7 feet, add or subtract the equivalent pressure from all the measured residual pressures (including static). Combine with adjustment in the following two steps if applicable. c. Adjusting for dynamic head loss pressure. d. In cases where it cannot be clearly shown otherwise, assume that 100% of each of the two test flows is flowing from the supply main, through the tap or tee of the residual hydrant, and on to the flow hydrant*. Calculate the dynamic head loss in the main between the residual hydrant tee and the flow hydrant tee for each test flow. Subtract each calculated head loss from each of the two corresponding measured residual pressure points. Do not adjust the static pressure point. Combine with adjustment in step 1 and 3 if applicable. *Note: This is considered a worst-case scenario and avoids the complexity of determining flow directions and magnitude in the existing pipe network. 3. Step 3: Adjusting for static HGL pressure differences. 4. After accounting for the hydrant elevation difference if the difference in the pre-test static pressures measured at both the residual hydrant and flow hydrant is greater than 3 psi then this value must be subtracted from all the measured residual pressures (including static). Combine with adjustment in step 1 and 2 if applicable. 5. Step 4: Adjusting for system supply pressure variations. a. When the resultant static pressure exceeds 80 psi (after applying adjustment steps 1 through 3) the maximum design static pressure to be used shall be 72 psi regardless of actual static test pressure. The slope of the previously adjusted water supply curve shall be used even though the design static pressure is reduced to 72 psi. Applying adjustments steps 1 through 4 will result in the final design supply curve to be used for hydraulic modeling. b. When the resultant static pressure is less than 80 psi (after applying adjustment steps 1 through 3), a minimum 10% safety factor shall be...CONTINUED WITHIN DSPM	WR	No change. There are times when this adjustment will be necessary and applicable from a technical perspective. Engineering judgement should be used to determine when this is necessary. When necessary, this outlines the process that should be followed.

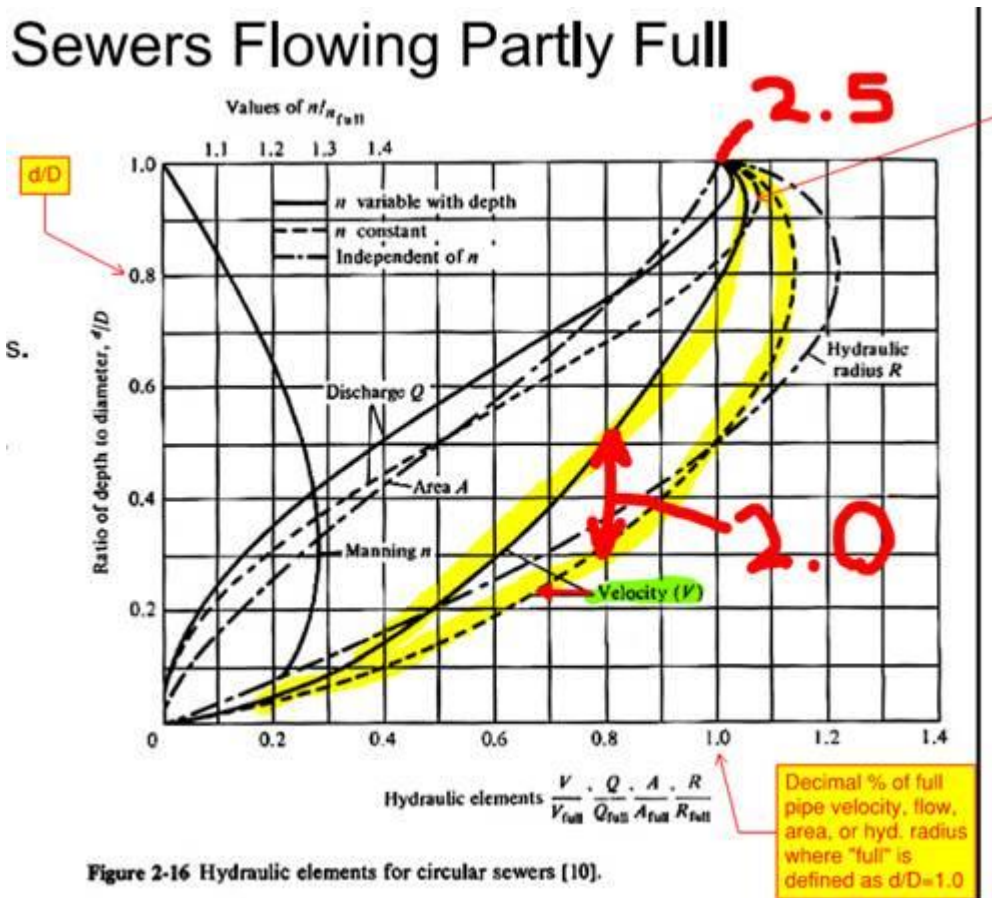
Public 2021 DSPM Draft Update Review Comments						Comment Related DSPM Language		STAFF Response	
Comment #	Page #	Section #	Sub Section	DS&PM Statement	Comment	REFERENCED VERBIAGE		DEPARTMENT	STATUS
53	492	6-1.406	B.	"The system shall be designed to maintain a minimum residual pressure of 50 psi at the highest finished floor level to be served by system pressure under normal daily operating conditions"	Reword to : "The system shall be designed to maintain a minimum residual pressure of 50 psi at all points in the public water system fronting the site."	PRESSURE REQUIREMENTS6-1.406 Pressure extremes in water systems result in the potential for contaminants to enter the network. Low pressures in the water system may allow polluted fluids to be forced into the system, and high pressures may cause ruptures or breaks in the network. The system requirements are as follows: A. The static pressure in the distribution system shall not exceed 120 pounds per square inch (psi). B. The system shall be designed to maintain a minimum residual pressure of 50 psi at the highest finished floor level to be served by system pressure under normal daily operating conditions. Refer to Section 6-1.202 for additional info an.		WR	No change. Some clarity could be provided on when the 15psi at highest finished floor criteria applies. Note that modeling to demand nodes is not intended to replace plumbing calcs and only include service line and "major" service line appurtenances. 3 reasons why this requirement exists, primarily applying to multiple structure developments spread over larger geographic areas, such as subdivisions. 1.) In areas of steep grade backflow could occur into the system from a home if positive pressure at highest finished floor is not maintained during fire flow i.e. vacuum condition. Note that residential homes do not have backflow preventers 2) During firefighting utilizing fire flow from a hydrant minimum sufficient pressure must be maintained for fixtures to be used in surrounding structures 3) The sprinkler systems of surrounding structures, that may be higher in elevation, may require minimum positive pressure to operate should they need to operate. Note: requirement is also stated in 6-1.406,C.
54	492	6-1.406	C.	" A domestic service pressure of 15 psi must also be simultaneously maintained at the highest finished floor."	Delete this sentence.	C. The system shall be designed to maintain 30 psi minimum pressure at the hydrant tee/tap under design fire flow requirements. Refer to Section 6-1.501. A domestic service pressure of 15 psi must also be simultaneously maintained at the highest finished floor. Note that the 30-psi minimum pressure design requirement provides a 10-psi safety factor to account for aging infrastructure and flexibility in locating pressure zone boundaries. Refer to Section 6-1.202 for additional info.		WR	No change. Some clarity could be provided on when the 15psi at highest finished floor criteria applies. Note that modeling to demand nodes is not intended to replace plumbing calcs and only include service line and "major" service line appurtenances. 3 reasons why this requirement exists, primarily applying to multiple structure developments spread over larger geographic areas, such as subdivisions. 1.) In areas of steep grade backflow could occur into the system from a home if positive pressure at highest finished floor is not maintained during fire flow i.e. vacuum condition. Note that residential homes do not have backflow preventers 2) During firefighting utilizing fire flow from a hydrant minimum sufficient pressure must be maintained for fixtures to be used in surrounding structures 3) The sprinkler systems of surrounding structures, that may be higher in elevation, may require minimum positive pressure to operate should they need to operate. Note: requirement is also stated in 6-1.406,C.
55	498	6-1.416	B.	"For planning and city design review purposes service lines and meters shall be sized per the analysis process described in Section 6-1.202, Model Scenario 4, Service Line Design Flow.	"For preliminary reports, meters size shall be estimated based on the peak site demand using one-half (1/2) the Initial Service Line Design Flow shown in Figure 6.1-4." Adjust Note 1 accordingly.	<u>B. Meter Sizing.</u> For planning and city design review purposes service lines and meters shall be sized per the analysis process described in Section 6-1.202, Model Scenario 4, Service Line Design Flow. Ultimately, final meter size will be determined during the building plan review process where a final determination of water fixtures, landscape irrigation, and fire sprinkler requirements can be made.		WR	No change. The initial service line design flow is based on fixture count and acceptable meter ranges per AWWA M22. There is no basis for only using 50% of this value. If fixture count is not possible meter size can be initially estimated by using peak hour flows as a surrogate for the IPC derived design flow. Peak hour would still be subject to the same adjustments as the IPC derived flow.
56	520	7-1.201	A.	"Preliminary BOD Report Format"	A. Preliminary BOD Report Format	A. Preliminary BOD Report Format 1. The preliminary BOD report(s) shall generally include the following items:		WR	No change. Comments on format. No response.
57	521	7-1.201	B.	"Report Submittal Requirement"	B. Report Submittal Requirement	B. Preliminary Report Submittal Requirements		WR	No change. Comments on format. No response.
58	522	7-1.201	D-2.	" Prove that there are no hydraulic or technical limitations or deficiencies with the proposed design."	" Prove that there are no hydraulic or technical limitations or deficiencies with the proposed design to a point where the City's current Integrated Wastewater or Water Reuse Master Plan identifies capacity."	Preliminary basis-of -design reports will evaluate a site's existing and proposed sewer demands to determine if adequate line capacity exists to sewer the development or if additional infrastructure will be required.		WR	Modified change addressed. Master plan conformance is highlighted under final BOD section. A modification of this can be added to the end of 7-1.201 A.5 as follows: "If deemed necessary, the objective of offsite capacity analysis is to prove that there are no hydraulic or technical limitations or deficiencies with the proposed design to a point where both the City's current Integrated Wastewater/Water Reuse Master Plan and other sources of flow information can reasonably determine current or future capacity."
59	532	7-1.402	A.- D.	" The water line and sanitary sewer line shall run parallel to each other with 6 feet of separation between the pipe walls."	Coordinate separation language with 6-1.402 A.7.c.	D. The water line and SS line shall run parallel to each other with 6 feet of separation between the pipe walls. Lines may cross the street centerline.		WR	Change addressed. Modified to the following: The water line and sanitary sewer line shall run parallel to each other with 6 feet of separation between the pipe walls. When sewer manholes are present, 9 feet shall be provided between water-centerline and sewer-centerline to provide adequate clearance distance from manhole edge.

Public 2021 DSPM Draft Update Review Comments						Comment Related DSPM Language		STAFF Response	
Comme nt #	Pag e #	Seccio n #	Sub Sectio	DS&PM Statement	Comment	REFERENCED VERBIAGE		DEPARTMENT	STATUS
60	532	7-1.403	B.	Demand Table	Coordinate demand categories with water demand categories. IE no industrial, hi-rise office, etc. Additionally some peak water demands (less outside water demand? Irrigation) do not appear to align with peak sewer flows.	<p>LAND USE AVERAGE DAY DEMAND (gpd)DESIGN PEAKING FACTOR Commercial/Retail0.5 per sq. ft.3 Office0.4 per sq. ft.3 Restaurant1.2 per sq. ft.6 High Density Condominium (Condo)140 per unit4.5 Resort Hotel (includes site amenities)380 per room.4.5 School: without cafeteria30 per student6 School: with cafeteria50 per student6 Cultural0.1 per sq. ft.3 Clubhouse for Subdivision Golf Course 100 per patron x 2 patrons per du per day4.5 Fitness Center/ Spa/ Health club Pool Backwash for Each pool2 (gpm) Keynotes:0.8 per sq. ft. 144,000003.5 N/A 1.Amenities is assumed to include laundry services and a moderately sized single in-house bar and/or restaurant and kitchen. Does not include pool backwash waste to sewer or account for large event venue spaces or associated kitchens for food preparation. These loads must be calculated and added separately. 2.100 gpm is assumed unless valid calculations per 7-1.404 are provided</p>		WR	No change. Any missing corresponding categories are considered minor or special cases. Water and sewer demands are not intended to correspond 1:1, note peaking factors also vary. Plans to update water/sewer demand tables will be part of a future DS&PM update but not included in this revision.
61	533	7-1.404	Item B	Scour velocity of sewer line is 2.5-fps	2.0-fps should be allowed if 2.5 is not physically achievable. This restriction happens a lot.	<p>B.Velocity. SS lines shall be designed and constructed to achieve a give-mean-full flow velocity equal to or greater than 2.5 fps at depth to diameter ratio (d/D) of 1.0, based upon Manning's Formula, using a constant "n" value of 0.013. To prevent abrasion and erosion of the pipe material, the maximum velocity will be limited to 10 fps at estimated peak flow. Where velocities exceed this maximum figure, submit a hydraulic analysis along with construction recommendations to the Water Resources Department for consideration. In no case will velocities greater than 15 fps be allowed.</p>		WR	No change. See response provided separately.
62	533	7-1.404	Item C.		Add criteria for pool backwash and permissible d/D to 8.0.	<p>C.Depth to Diameter The SS system shall be designed to achieve uniform flow velocities through consistent slopes. Abrupt changes in slope shall be evaluated for hydraulic jump. The depth to diameter ratio (d/D) for gravity SS pipes 12 inches in diameter and less shall not exceed 0.65 in the ultimate peak flow condition. This d/D ratio includes an allowance for system infiltration and inflow (I/I). The d/D for gravity drains greater than 12 inches diameter shall not exceed 0.70 for the ultimate peak flow condition. This d/D ratios includes an allowance for system infiltration and inflow (I/I&I). Note: When peak design flows should incorporate short-term but substantial flows, e.g. pool filter backwash or other, the allowable d/D ratio can be increased to 0.80. However, the 0.65 to 0.70 d/D requirement without the short-term substantial flows must also concurrently be met i.e. dual constraint. I/I is not considered a short-term substantial flow under this criteria and an allowance for it must always be maintained.</p>		WR	No change. The comment is already addressed in the DS&PM modifications: " Note: When peak design flows should incorporate short-term but substantial flows, e.g. pool filter backwash or other, the allowable d/D ratio can be increased to 0.80. However, the 0.65 to 0.70 d/D requirement without the short-term substantial flows must also concurrently be met i.e. dual constraint. I/I is not considered a short-term substantial flow under this criteria and an allowance for it must always be maintained. "
63	536	7-1.405	items A & E	both items describe slope through new Manhole base	what's the difference between 1"/foot minimum slope & 0.10' minimum drop? Which one controls?	<p>A.Manhole Base Manhole bases shall be cast in place. The flow channel through the manhole shall be steel trowel finished to conform in shape and slope to the SS pipe. The manhole shelf should be brushed, or broom finished, with a slope of 1 inch per foot. The manhole bottom should be filleted to prevent solids depositions and channeled to ensure satisfactory flow to the lower invert. E.Intersecting Lines within Manholes Any DIP or pipe appurtenances used within the manhole shall be completely coated and lined with 100 percent solids epoxy to withstand the corrosive environment or substituted with an appropriate corrosion resistant material approved by the Water Resources Department. All changes in horizontal direction, slope, material or size of the sewer line shall occur at a manhole. The horizontal angle formed between the two lines cannot be less than 90 degrees. Manholes shall have a minimum 0.10-foot drop across the trough unless otherwise approved by the Water Resources Department. Where pipe size changes through a manhole, the top invert of the upstream pipe(s) will be equal to or higher than the top invert of the downstream pipe. In large trunk lines, inverts at junctions should be designed to maintain the energy gradient across the junction and prevent backflow.</p>		WR	No change. See response provided separately.

7-1.404 B:

DRB Comment: 2.0-fps should be allowed if 2.5 is not physically achievable. This restriction happens a lot.

Water Resources Engineering Response: 2.5fps is targeted so that greater than 2.0 is achieved for a larger range of the d/D (pipe fullness). See below. Per current requirement, 2 fps or greater will be achieved from d/D of 0.3-0.5 all the way to 1.0. Below 0.3- 0.5 the velocity will be less than 2fps. The variability occurs depending on using a constant versus depth-dependent Manning's "n" value. Generally, we are using constant n thus velocities will be greater than 2fps for a larger range of d/D i.e. 0.3 to 1.0, which is what we want. If we made required velocity 2fps at d/D equals 1.0 the range would be a narrower 0.5 to 1.0. That being said, where no other feasible and reasonable alternative exists, we sometimes, on a case by case basis and weighing all of the information, will allow 2fps at d/D=1.0. Higher slopes/velocities will ensure solids do not settle out of the flow causing maintenance and odor issues. Higher slopes also convey appreciably more flow, thus a longer effective useful life of the sewer before needing to be potentially upsized. See below for graphical description of description above.



7-1.404 C.

DRB Comment: Add criteria for pool backwash and permissible d/D to 8.0.

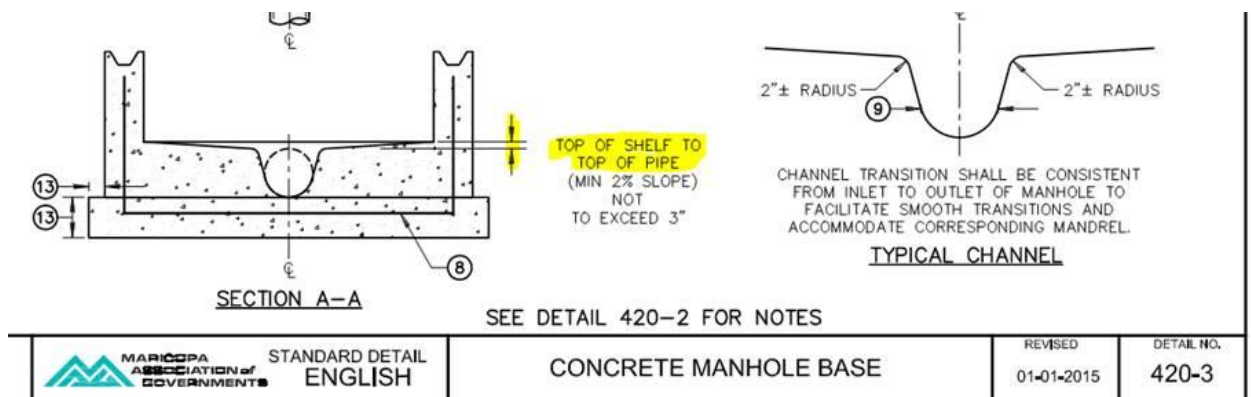
Water Resources Engineering Response: The comment is already addressed in the DS&PM modifications: **Note:** When peak design flows should incorporate short-term but substantial flows, e.g. pool filter backwash or other, the allowable d/D ratio can be increased to 0.80. However, the 0.65 to 0.70 d/D requirement without the short-term substantial flows must also concurrently be met i.e. dual constraint. I/I is not considered a short-term substantial flow under this criteria and an allowance for it must always be maintained.

DSPM 7-1.405. A + E:

DRB Comment: *What's the difference between 1"/foot minimum slope & 0.10' minimum drop? Which one controls?*

Water Resources Engineering response: The difference between the two is slope for manhole "shelf" or bench perpendicular to the flow/trough/channel versus drop across the manhole in the direction of flow. Per DS&PM the manhole shelf/bench shall be sloped 1"/12" towards the trough/channel or 8.3%. Contrast this with MAG minimum below that lists 2% or 0.24"/12". The COS requirement thus tends toward the upper MAG range of 3" shown below with shelf drop values of 2" to 2.5" on a 4-5ft diameter manhole, exact value depending on diameter of pipe.

MAG detail below





Balancing Nature and Safety

A Homeowner's Guide to
Wash Ownership and
Maintenance



MAINTAINING SCOTTSDALE'S NATURAL WASHES



Historically, Scottsdale has preserved as much of the Sonoran desert landscape as possible. Especially in the north, the city usually allows natural washes to handle runoff from storms, rather than building concrete-lined stormwater channels and other structures. Additionally, the preservation of native plants within washes and the environmental protection of wash corridors are important goals of the city.

This natural system of washes brings its own set of challenges. Over time, natural and man-made obstructions often block the free flow of stormwater. Overgrown desert plants or dead vegetation may accumulate. People sometimes dump waste material into washes, fill them when grading lots, or build walls or fences across them.

Blocking washes can create serious damage and put people in danger. Though we live in a desert, our infrequent rains can be heavy and sudden. Obstructions can divert the flow of a wash, cause erosion, and flood buildings.

Consequently, the city must work with residents to strike a balance. The city's wash systems must be maintained to reduce the risk of flooding for Scottsdale residents. At the same time, maintenance work needs to comply with the city's ordinances protecting natural open spaces, environmentally sensitive areas and native plants.



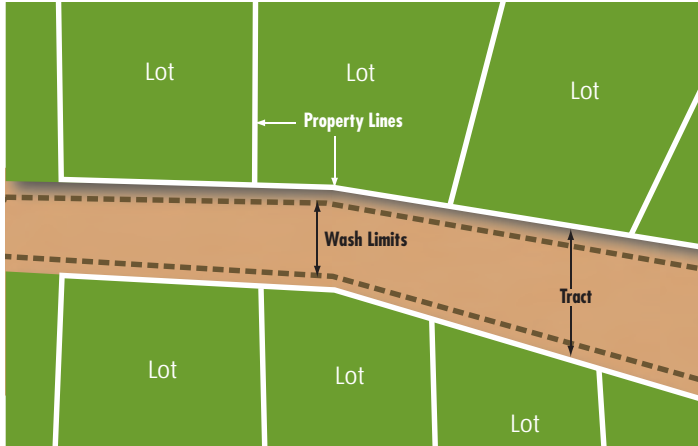
WHO IS RESPONSIBLE FOR MAINTAINING WASHES?

- Property owners are responsible for maintaining the portion of a wash that is on their property.
- The city is not responsible for maintaining washes on private property.
- The city is responsible for maintaining washes on city-owned property, such as those in city parks or crossing city streets.

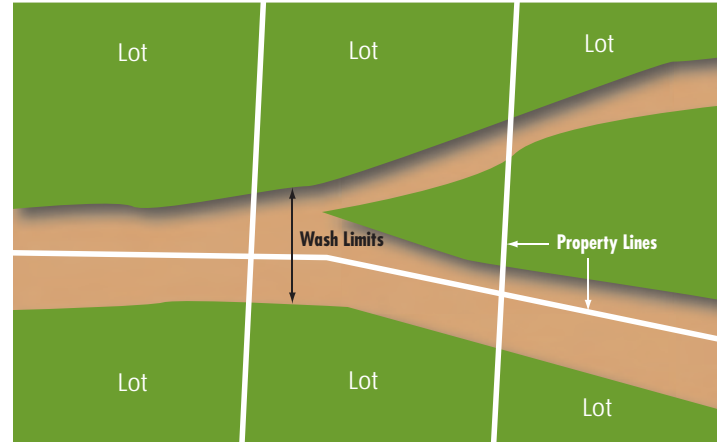


WHICH PARTS OF THE WASH DO I OWN?

You can contact the city for detailed information on your property boundaries. For residential properties, there are two typical ownership patterns related to wash property.



In the first, the wash is located within a separate tract of land, typically owned by a homeowner's association. An example of this ownership pattern is shown above. It is common in larger subdivisions or master planned communities. In this situation, the homeowner's association (or the owner of the tract) is responsible for maintenance of the washes within the tract.



In the second pattern, washes are located within the boundaries of individual parcels. This pattern is more common among parcels created by lot splits and in many smaller or older residential subdivisions. Typically, such patterns locate washes near property lines to maximize the developable area of the lot. An example of this pattern is shown above. In this situation, each lot owner is responsible for the portion of the wash located within his or her property.



If you are uncertain of the boundaries of your property or whether a wash is within those boundaries, the configuration and an aerial image of your parcel can be viewed using the city's land information web map application at <http://eservices.scottsdaleaz.gov/dmc/liw.aspx>. This digital map also allows you to view the approximate boundaries of medium- to large-sized washes shown in the legend as "Large Washes - 50 cfs". For assistance from city staff, please call Stormwater Management at (480) 312-2500 or Records at (480) 312-2356.

HOW OFTEN SHOULD I INSPECT WASHES ON MY PROPERTY?

Please inspect washes crossing your property at least annually and after any storm that produces flow within the washes.

WHAT DO I NEED TO DO (AND NOT DO) TO MAINTAIN A WASH ON MY LAND?

The goal of wash maintenance is to remove obstructions that significantly reduce the ability of washes to convey storm flows, particularly in areas where houses and other structures could be flooded. Before starting any maintenance program, please contact either Stormwater Management or Current Planning at (480) 312-2500. This goal is accomplished by removing debris, weeds, and overgrowth while observing the city's environmental protection ordinances and requirements.

You should:

- Remove all man-made trash and debris, dead plant material, grasses, weeds, small shrubs, and plants identified by the city as invasive plants from the bottom of the wash. (A list of invasive plants can be obtained at <http://www.scottsdaleaz.gov/Assets/Public+Website/bldgresources/invasiveweeds.pdf>)

- Trim trees and large shrubs so that limbs are three feet above the bottom of the wash. (See the diagram on the next page as a guideline; the city suggests using a certified arborist when performing major tree trimming operations.)
- Remove all debris and plant material from the area and dispose of them properly.

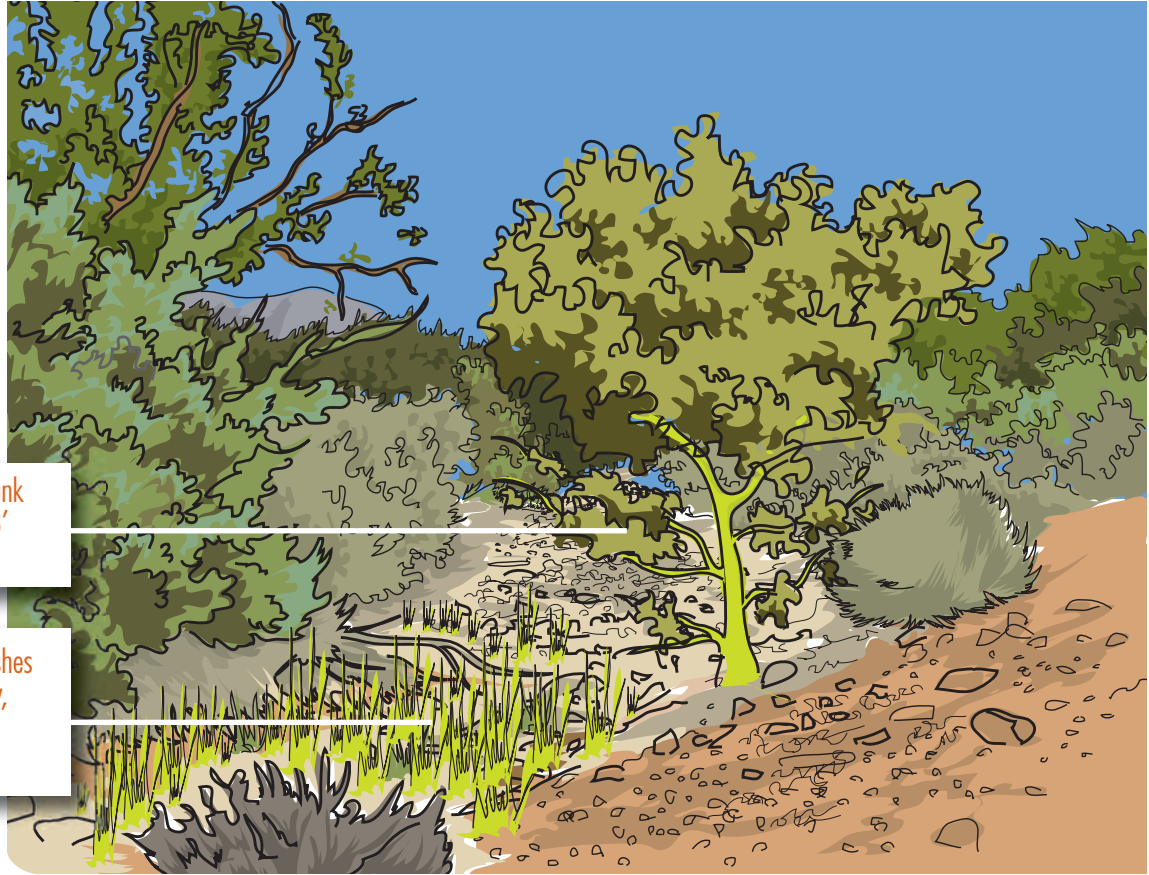
You shouldn't:

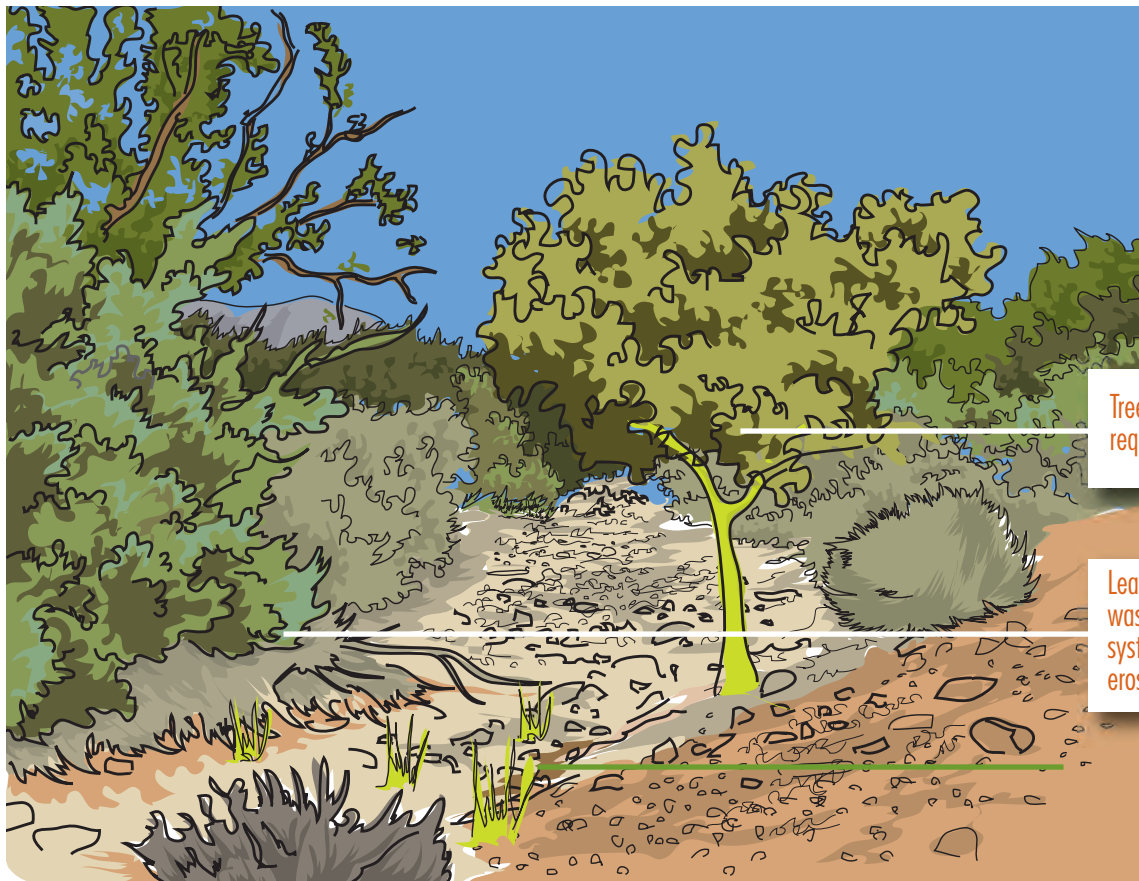
- Remove grasses, root systems and small shrubs from the wash banks – these stabilize wash banks against erosion and should be left intact.
- Remove cacti, trees or plants protected by the city's Native Plant Ordinance without prior approval by the city. More information on native plants is available at www.scottsdaleaz.gov/codes/nativeplant or by calling Current Planning at (480) 312-2500.

WASH MAINTENANCE

Trim trees to create a clear trunk from the base of the tree to 3' above wash bottom

Remove most grasses and bushes from the wash bottom entirely, since these greatly restrict stormwater flows.





Trees should remain, but may require trimming.

Leave vegetation on banks of washes alone, since the root systems stabilize the bank against erosion.

WORKING IN DESIGNATED NATURAL AREA OPEN SPACE

Many natural washes in Scottsdale are located within areas designated as Natural Area Open Space (NAOS). When working in these areas, specific requirements must be met to preserve the natural desert environment. Current Planning should be contacted at (480) 312-2500 to determine if a wash is located within NAOS and to obtain approval for wash maintenance work within these areas.

More information on requirements for work within NAOS may be found in:

- Chapter 2-2.501.D of the city's Design Standards and Procedures Manual at www.scottsdaleaz.gov/design/dspm
- Section 6.110 of the city's Environmentally Sensitive Lands Ordinance at www.scottsdaleaz.gov/Assets/Public+Website/codes/ESLOCodeText.pdf

MAINTAIN HISTORIC GRADES

You may also need to remove sediment

deposited by a storm, or fill and compact an area of a wash that has been substantially eroded. To preserve the natural desert and minimize environmental impact, work within the wash should be confined to hand labor or small motorized equipment. The use of motorized equipment is subject to City approval which can be obtained by contacting Stormwater Management at (480) 312-2500.

WHAT IF I WANT TO DO MORE THAN MAINTENANCE? WHAT IF I CHANGE THE WASH?

If you plan to do more than maintenance such as realigning or filling the wash or armoring the banks to provide erosion protection, you will need city approval of an engineered grading and drainage plan as a minimum. The first step is to contact Current Planning or Stormwater Management at (480) 312-2500 to determine the process and requirements for the engineered grading and drainage plan.

WHAT IF I WANT TO CROSS A WASH WITH A WALL OR FENCE?

Wall or fence crossings of washes are one of the major sources of flooding in the City of Scottsdale. Drainage openings in walls for washes are often undersized for the flow that needs to pass through them. Fences across washes are built with the perception that water will freely flow through the fence while in reality the fence will catch debris and plant material and block flow through the opening. Improvements for wall or fence crossings of washes will also require city approval of an engineered grading and drainage plan.

WE'RE HERE TO HELP

The city's stormwater and planning specialists are here to assist you in understanding wash maintenance and related issues. Please contact us at (480) 312-2500.







Stormwater Mgmt.

7447 E. Indian School Rd.
Scottsdale, AZ 85251
www.ScottsdaleAZ.gov